

Math 0304

Practice Test 2, Chapter 3

① complete the ordered pair
(x , 1) to satisfy the equation
 $y = 5x - 2$.

Given y -coordinate = 1

$$\begin{array}{rcl} 1 & = & 5x - 2 \\ +2 & & +2 \end{array}$$

$$\frac{3}{5} = \frac{5}{5}x$$

$$\boxed{\frac{3}{5}} = x$$

$\left(\frac{3}{5}, 1\right)$ point

2) Complete the ordered pair $(0, y)$ to satisfy the equation $2x - 3y = 4$.

Given $x = 0$ find y .

$$2x - 3y = 4$$

$$2(0) - 3y = 4$$

$$0 - 3y = 4$$

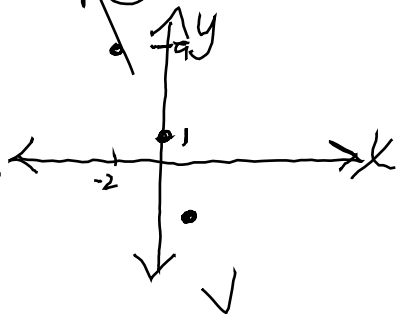
$$\frac{-3y}{-3} = \frac{4}{-3}$$

$$y = -\frac{4}{3}$$

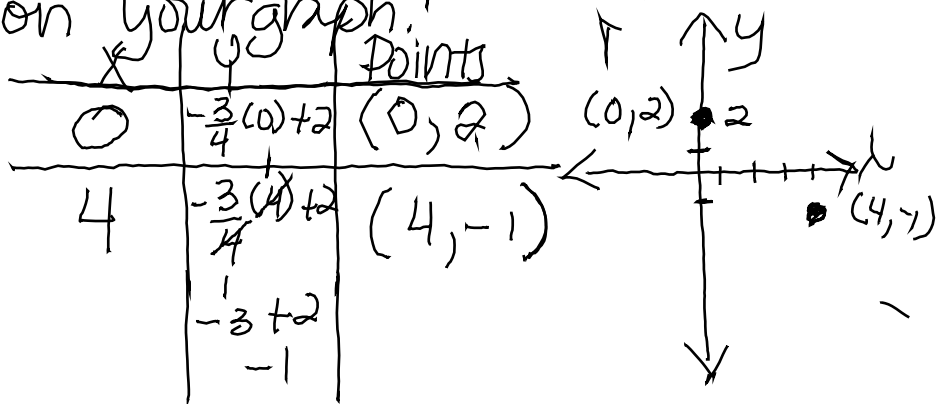
Point $(0, -\frac{4}{3})$

3) Construct a table of values then graph the equation $y = -4x + 1$

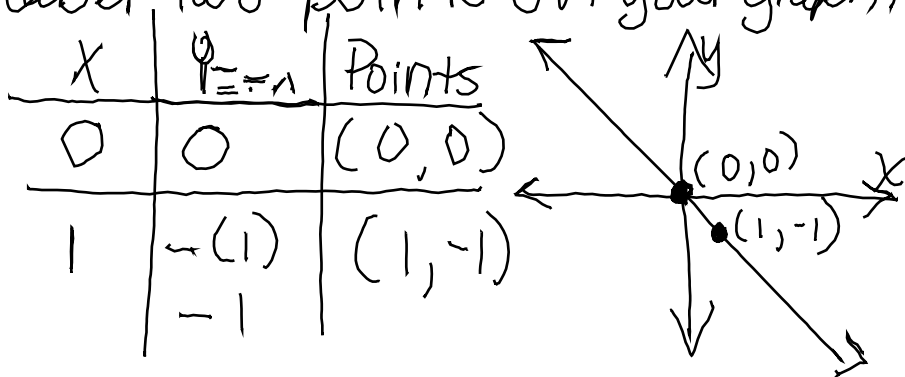
x	$y = -4x + 1$	Points
-2	$-4(-2) + 1$	$(-2, 9)$ ✓
0	$-4(0) + 1$	$(0, 1)$ ✓
1	$-4(1) + 1$	$(1, -3)$ ✓



4) Graph the line $y = -\frac{3}{4}x + 2$ and label two points on your graph.



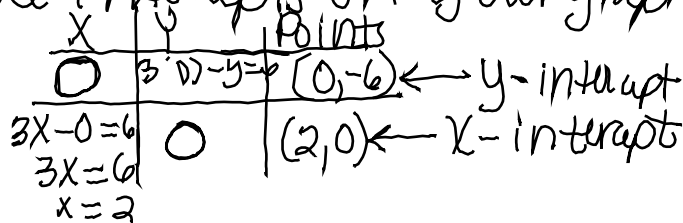
5) Graph the line $y = -x$ and label two points on your graph.



6) Graph by find x- and y- intercepts. Label the intercepts on your graph.

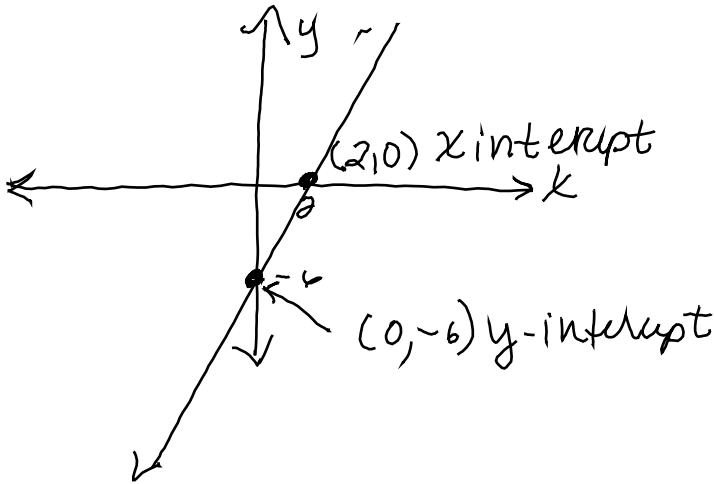
$3x - y = 6$

Tic Tac toe



⑥

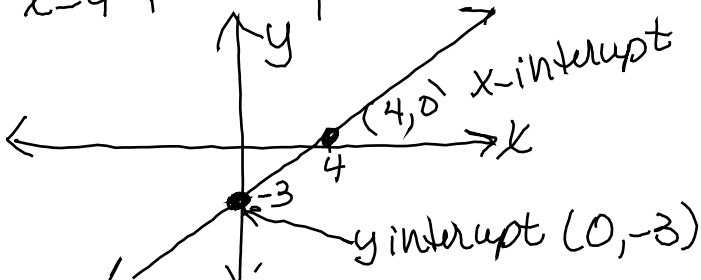
Two points: $(0, -6)$ and $(2, 0)$



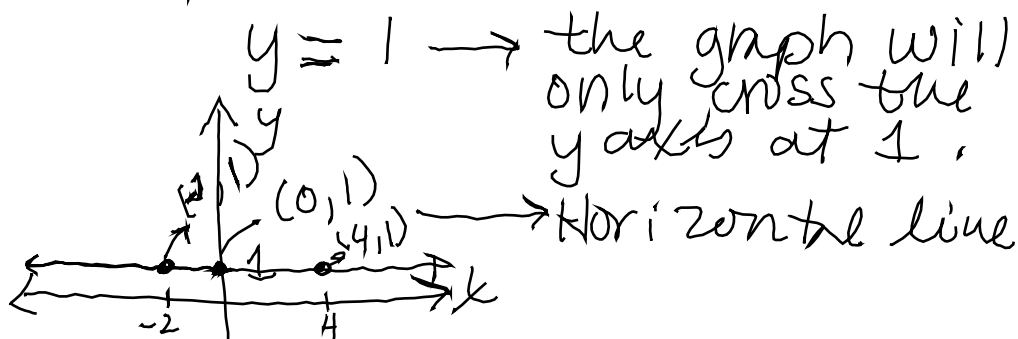
⑦ Graph using x and y - intercept, label the intercepts on your graph.

$$3x - 4y = 12$$

x	y	Points
○	$3(0) - 4y = 12$ $-4y = 12$ $\frac{-4y}{-4} = \frac{12}{-4}$	$(0, -3) \leftarrow y\text{-intercept}$
$3x - 4(0) = 12$ $3x = 12$ $\frac{3x}{3} = \frac{12}{3}$ $x = 4$	○	$(4, 0) \leftarrow x\text{-intercept}$



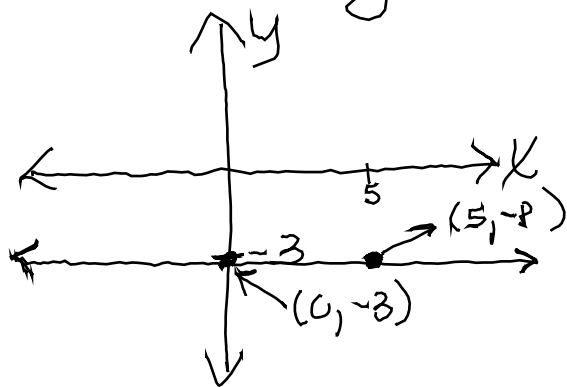
- (8) Graph the equation $y = 1$ and label two points on your graph.



- (9) Graph $3y = -9$ and label two points.

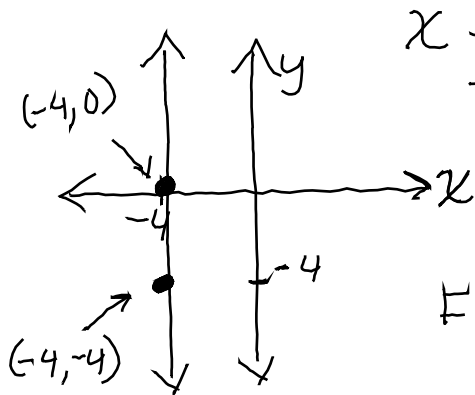
$$\frac{3y}{3} = \frac{-9}{3} \text{ solve for } y.$$

$y = -3$ Horizontal line only cross the y axis at -3.



- ⑩ Graph $x + 4 = 0$ and label two points.

step 1: Isolate the x .



$$x + 4 = 0$$

$$\begin{array}{r} -4 \\ -4 \end{array}$$

$x = -4$ Vertical line
crosses x -axis
@ -4

Fixed x value of -4 !

- ⑪ Find the slope through the points
 $(-3, 0)$ and $(-3, -9)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-9 - 0}{-3 - (-3)} = \frac{-9}{0} = \text{und.}$$

↑ Be careful!

Answer: Undefined

- ⑫ Find the slope through the
points $(1, -2)$ and $(-4, 5)$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{5 - (-2)}{-4 - 1}$$

$$m = \frac{7}{-5} = \boxed{\frac{7}{-5}}$$

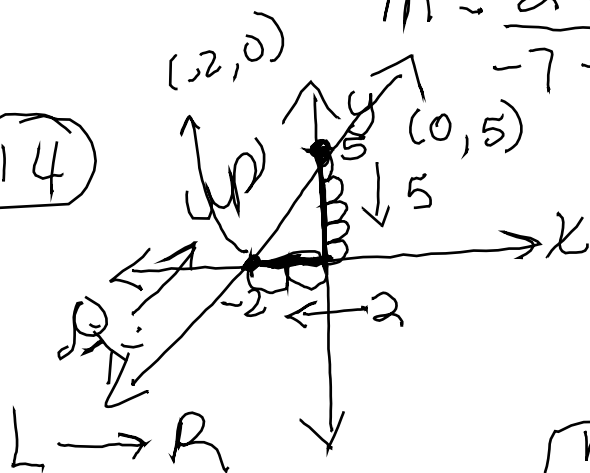
(13) Find the slope of the line through the points $(7, 2)$ and $(-7, 2)$

x_1, y_1
 x_2, y_2

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$m = \frac{2 - 2}{-7 - 7} = \frac{0}{-14} = 0$$

(14)



$m = \text{positive}$

$$m = \frac{\text{rise}}{\text{run}}$$

$$m = \frac{-5}{2}$$

$$m = \frac{5}{2}$$

(15) Find the slope of the line;

$4x - 2y = 3$ Equation
Step 1: solve for y .

$$\begin{array}{rcl} 4x - 2y & = & 3 \\ -4x & & -4x \\ \hline -2y & = & 3 - 4x \end{array}$$

$$\frac{-2y}{-2} = \frac{3}{-2} - \frac{4x}{-2}$$

$$y = -\frac{3}{2} + 2x$$

$$y = \boxed{2}x - \frac{3}{2} \rightarrow y = mx + b$$

Step 2. $\boxed{m=2}$ coefficient of x
 = identify slope as the number
 in front of x .

$$m = 2$$

(16) Find the slope of the
 line: $3x + y = 10$

$\boxed{\text{Step 1:}}$ solve for y .

$$\begin{array}{rcl} 3x + y & = & 10 \\ -3x & & -3x \end{array}$$

$$y = -3x + 10$$

$\boxed{\text{Step 2:}}$ Identify the slope
 as the coefficient
 of x .

$$y = \boxed{-3}x + 10$$

$$\boxed{m = -3}$$

①7 Determine if the given lines are

- a) Parallel \rightarrow Same Slope
- b) Perpendicular \rightarrow product is -1
or opposite recip^{als} of each
- c) Neither \rightarrow no parallel other.
- no perpendicular

$$\begin{aligned} L_1: x + 3y &= 6 \\ -x & \quad -x \\ 3y &= \frac{-1x}{3} + \frac{6}{3} \\ m_1 = -\frac{1}{3} \quad y &= \boxed{-\frac{1}{3}}x + 2 \end{aligned}$$

$$\begin{aligned} L_2: 3x - y &= 0 \\ -3x & \quad -3x \\ -y &= \frac{-3x}{-1} \\ y &= 3x \end{aligned}$$

$$m_2 = 3$$

compare the slopes

$$m_1 = -\frac{1}{3} \quad m_2 = 3$$

Not Parallel

Perpendicular $\rightarrow m_1 \cdot m_2 = -1$

or $-\frac{1}{3} \cdot 3 = -1$

$\rightarrow -\frac{1}{3}$ is the opposite
and reciprocal of $3/1$

<p>⑩ $L_1: 2x + y = 0$</p> <p style="margin-left: 40px;">$-2x$ $-2x$</p> <p style="margin-left: 100px;">$y = -2x$</p> <p style="margin-left: 60px;">$m_1 = -2$</p>	<p>$L_2: y - 2x = -2$</p> <p style="margin-left: 40px;">$+2x$ $+2x$</p> <p style="margin-left: 100px;">$y = 2x - 2$</p> <p style="margin-left: 60px;">$m_2 = 2$</p>
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Not Parallel — different

Not Perpendicular — Not opposite recip.
and $-2 \cdot 2 \neq -1$
 $-4 \neq -1$

Neither

$$(19) L_1: 5y + 5x = 10$$

$$m_1 = -1$$

$$\frac{5y}{5} = \frac{-5x}{5} + \frac{10}{5}$$

$$y = -1x + 2$$

$$L_2: X + y = 1$$

$$y = -1x + 1$$

$$m_2 = -1$$

Compare $m_1 = m_2$

$$-1 = -1 \text{ Same}$$

Parallel

(20) Equation of a line

$$y = [m]x + b$$

Given: $m = -\frac{1}{2}$ y-int $(0, 7)$

$$y = -\frac{1}{2}x + 7$$

$$b = 7$$

- (21) Graph $y = \frac{3}{4}x - 1$ by the slope-intercept method. Label two points on the line.

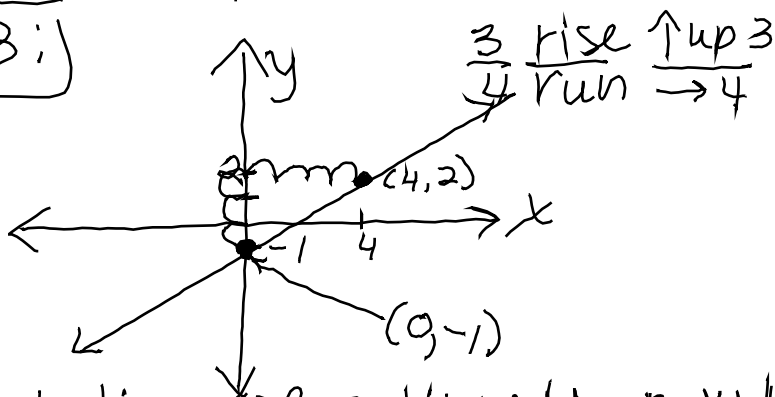
$$y = \frac{3}{4}x - 1$$

Step 1: Solve for y. ✓

Step 2: Identify m and b

$$m = \frac{3}{4} \quad b = -1 \rightarrow (0, -1)$$

Step 3:



- (22) Equation of a line: $y = mx + b$
 $m = -5$ that passes through $(1, -1)$.

Step 1: What is m ? $m = -5$

Step 2: What is b ? unknown
Find b .

Given: $m = -5$ point $(1, -1)$

$$y = mx + b$$

$$-1 = -5(1) + b$$

$$\begin{array}{r} -1 = -5 + b \\ +5 \quad +5 \end{array}$$

$$4 = b$$

$$y = mx + b$$

$$\boxed{y = -5x + 4} \text{ Answer.}$$

(23)

Given two points (x_1, y_1) and (x_2, y_2) $(0, 3)$ and $(-4, 0)$

$$y = mx + b$$

Step 1: What is m ?

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{0 - 3}{-4 - 0} = \frac{-3}{-4}$$

$$\boxed{m = \frac{3}{4}}$$

Step 2: What is b ? $(0, 3)$

$$\boxed{b = 3}$$

$$y = mx + b$$

$$y = \frac{3}{4}x + 3$$